VIRGINIA CLASS LOGISTICS TECHNICAL DATA

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VIRGINIA Class Logistics Technical Data

What is VIRGINIA (SSN774)?

- First hull of a planned 30 Fast Attack Submarine Class

What is different about VIRGINIA Class from a Logistics Technical Data Standpoint?

- Designed as “Paperless Ship” environment

VIRGINIA Class Logistics Technical Data

Comparison of Attack Submarine Classes

Los Angeles Class

Length: 360 feet (109.7meters)
Beam: 33 feet (10.1 meters)
Displacement: Approx. 6,900 tons submerged
Speed: 20+ knots

Ships: 688 and 688(I) – 51 total

Crew: 14 Officers; 129 Enlisted

Seawolf Class

Length: 353 feet (107.6 meters)
Beam: 40 feet (12.2 meters)
Displacement: 9,150 tons submerged
Speed: 25+ knots

Ships: USS Seawolf (SSN 21)
USS Connecticut (SSN 22)
Jimmy Carter (SSN 23), under construction

Crew: 14 Officers; 130 Enlisted

Virginia Class

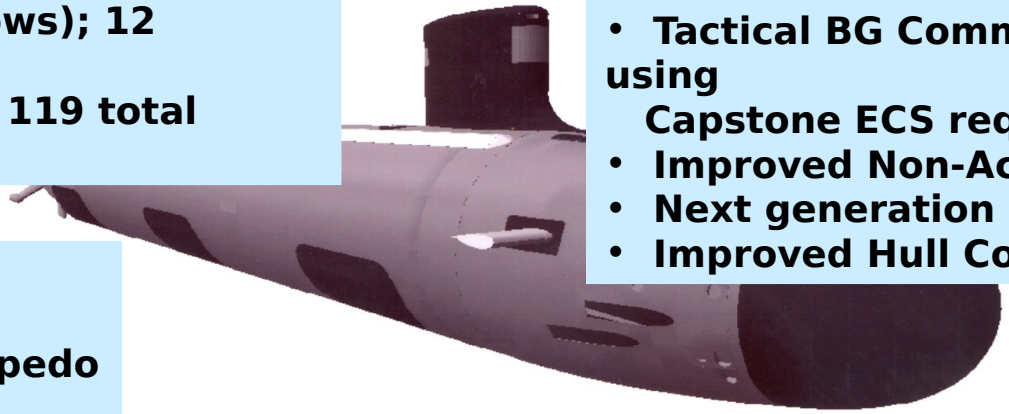
Length: 377 feet (114.91 meters)
Beam: 34 feet (10.36 meters)
Displacement: 7,800 tons (submerged)
Speed: 25+ knots **Ships:**
Virginia (SSN 774), delivery in 2004
Texas (SSN 775), delivery in 2005
Hawaii (SSN 776), delivery in 2006
North Carolina (SSN 777), dlvy 2007

VIRGINIA Class Logistics Technical Data

VIRGINIA (SSN 774) Class Characteristics/Features

Characteristics/Description:
- **Length - 377 FT**
- **Displacement - 7800 LT**
- **Test Depth - > 800 FT**
- **Speed - > 25 KTS**
- **Weapons Launchers - 4 Horizontal (24 Stows); 12 Vertical**
- **Accommodations - 119 total berths**

Capability/ Improvements:
- **Special Operating Forces Delivery/ Recovery - 9 Man Lockout Trunk, DDS, ASDS, Hovering**
- **ESM Suite - AN/BLQ-10 with Classic Troll**
- **Tactical BG Communications using Capstone ECS requirements**
- **Improved Non-Acoustic Stealth**
- **Next generation Propulsor**
- **Improved Hull Coating**



Special Features:
- **Mission Reconfigurable Torpedo Rm**
- **Open System Architecture**
- **Modular Masts**
- **Mine Avoidance HF Sonar**

Started 1998

Delivers 2004

VIRGINIA Class Logistics Technical Data

- **VIRGINIA Class Submarine was designed with ability to access essentially all information via computer**

- **Requirement: VIRGINIA Class ORD**
  - **Section: Other Logistics Considerations**

  "conform to….paperless ship initiatives and provide shipboard data digitally…"

Hard Copy Data Stowage	Digital Data Stowage
• One user per document	• Unlimited number of users per document
• Items immediately available are limited to those on bookshelves, lockers, etc.	• User has access to ALL onboard information

PMS450TLD Logistics Technical Data Process Integration Team Leader

- Program Office Equipment TMMA

Contractor Furnished Equipment

- Ships Systems Manuals (SSMs) 87
- System Operating Instructions (OIs) 76
- Ship Operating Procedures (OPs) 28
- Ship Casualty Procedures (CPs) 19
- Technical Manuals 147
- Total Manuals 357
- 88 Technical Manuals published, modified or extended applicability

SEA08 Cognizant Technical Documents

Government Furnished Equipment

- Working with 16 Participating Managers (PARMS)
- Delivering 21 Technical Publications

Miscellaneous

- Training Aid Booklet
- SUBSAFE Certification Boundary Book
- Ship's Drawings and Drawing Index
- Deep Submergence Systems Scope of Certification
- Weapons Delivery System Equipment Manual
- Escape and Rescue Guard Book
- Motors and Controllers Technical Manual

Government Furnished Information

Government Furnished Equipment

- The Index of Technical Publications continues to grow
  - Currently **XX** line items other then PARM or CFE

Other Publications

- Publications considered "Non-ITP"
  - Naval Warfare Publications
  - Administration Publications
  - Medical Publications
  - Rate Training Publications
  - NAVAL Instructions
  -
  - The list is endless …

Where we Started

- DYNATEXT, AIMSS, and GUIDE
- DOS Based Advanced Technical Information Support (ATIS) System
- CD Juke Box Access (planning for server based storage)
- Limited Lap Tops and Access Drops

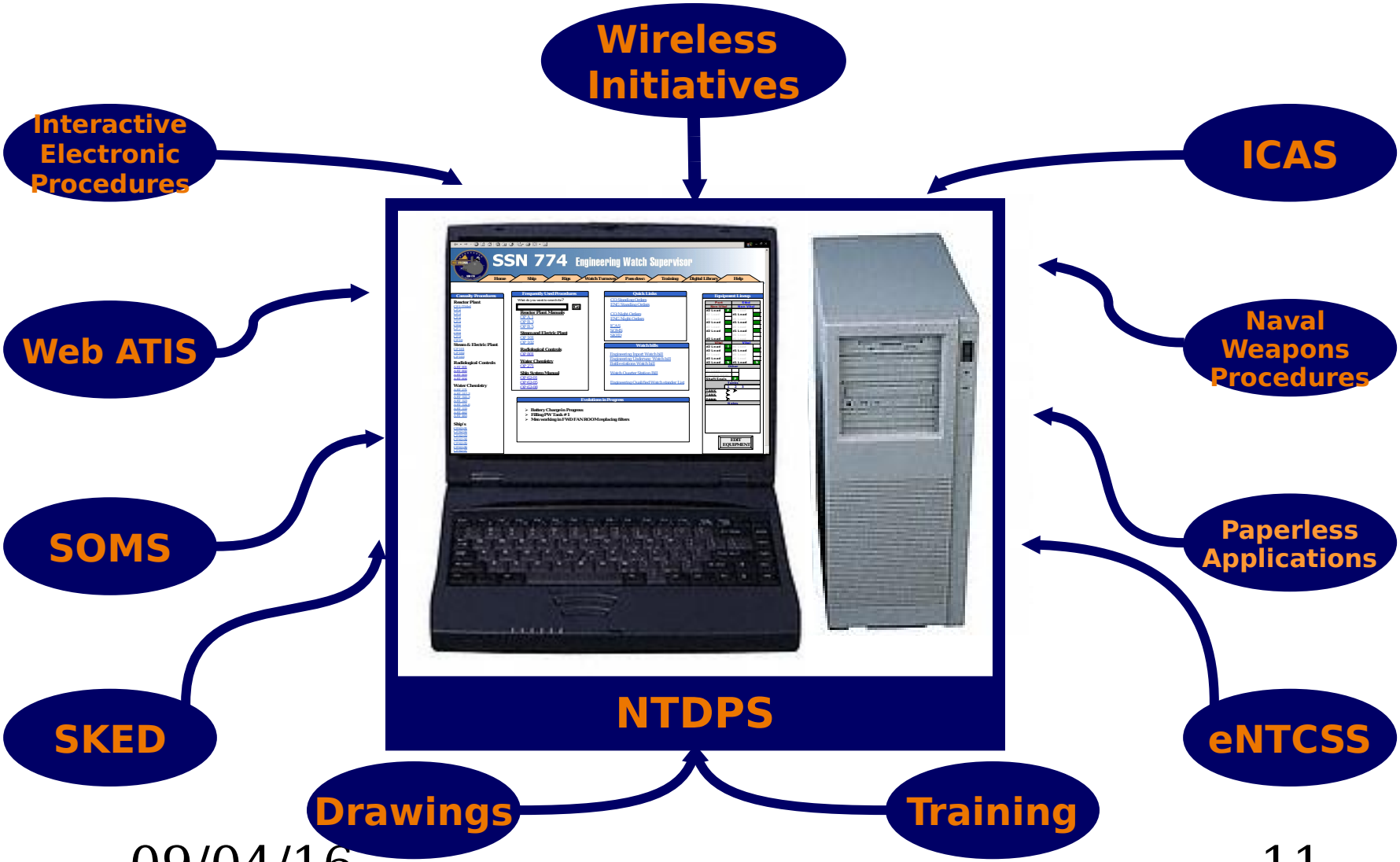
Where we Ended Up

- Linearly Structured WEB Based IETMS
- Developed in SGML and published in HTML
  - Portable Document Format (PDF) for low use manuals
  - Legacy manuals “Rolled Over” remain in legacy format
- WEB Based ATIS
- RAID Array Storage with FWD and AFT Servers
- Crew portable and Watch Station Laptops

What we investigated along the way

- We wanted to go further
  - Integrated hybrid training and technical documentation
  - Data in a write once/use many scenario
- Technology was not mature when we started
  - When matured we were faced with rework and funding constraints

VIRGINIA Class Logistics Technical Data



DELIVERY

- Paperless (Critical documentation in paper back-up)
- WEB Based Server Environment (Optimized to Microsoft Internet Explorer®)
- Distributed via Local Area Network - Non-Tactical Data Processing Subsystem (NTDPS)
- Watch Station Home Pages with quick reference links
- Departmental and Divisional Home Pages
- Ability to X-window to technical publications from tactical work stations

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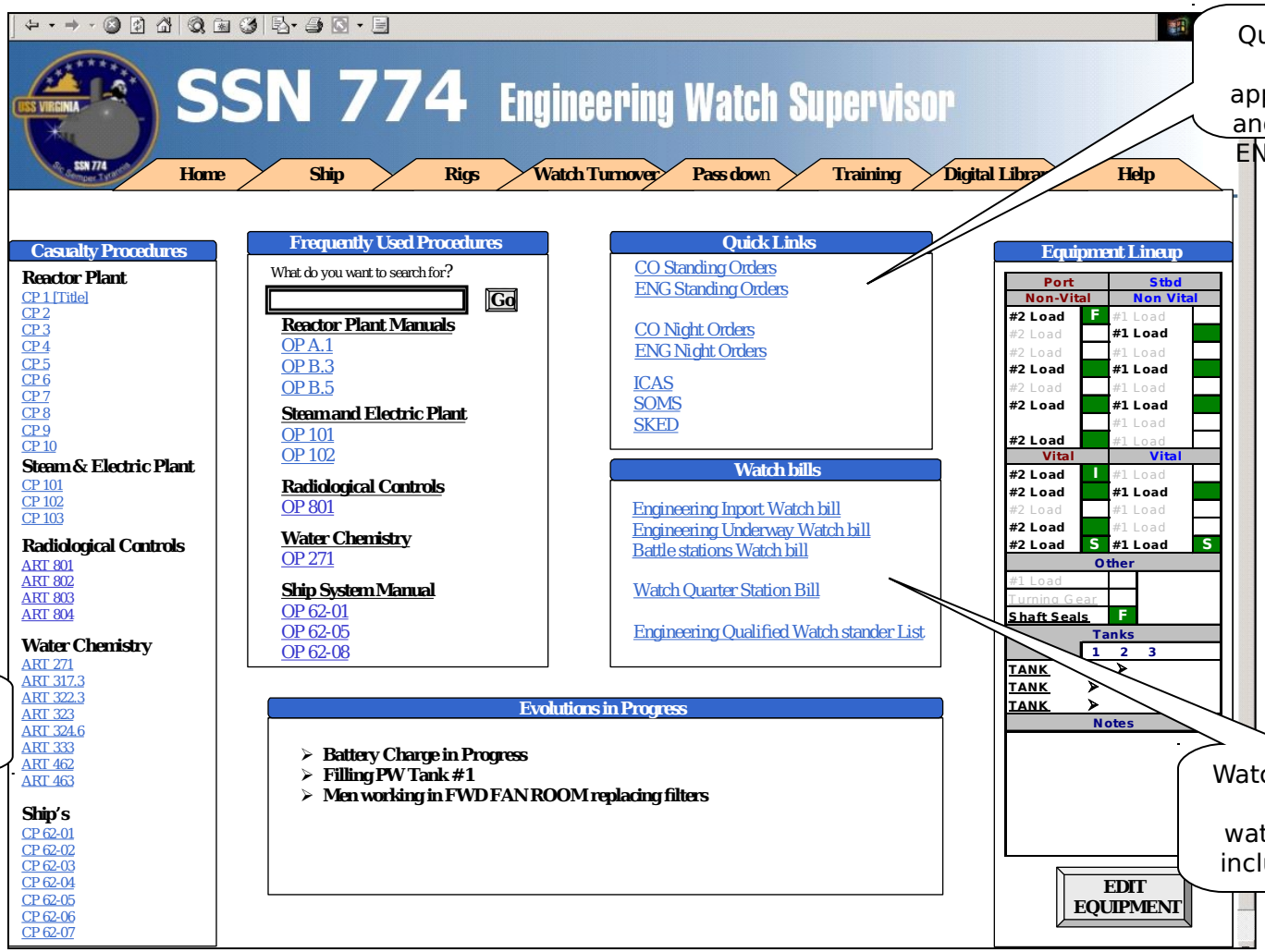
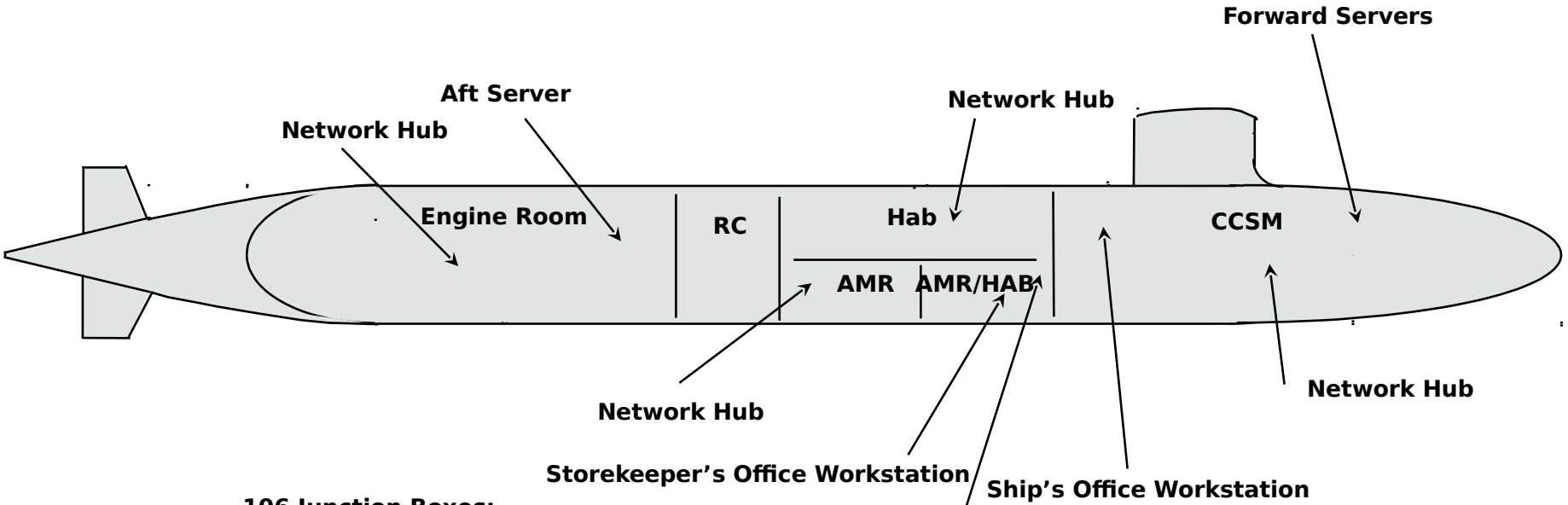


BASIC NETWORK ARRANGEMENT



106 Junction Boxes:

- **21 CCSM**
- **4 WPN**
- **30 HAB**
- **6 AMR/HAB**
- **4 AMR**
- **41 ER**

FIRST SHIP CHALLENGES

- Establishment of a properly trained Information Technology Division
- Establishment of first ship Index of Technical Publications (ITP)
- Technical Manual Maintaining Activity (TMMA) change packages and schedule for publication
- Commercial Off the Shelf (COTS) components and TMINS assignment

FIRST SHIP CHALLENGES

- Providing a technical library for Pre-Commissioning Unit (PCU) training
- Transfer of data from the PCU Local Area Network (LAN) to the Shipboard LAN
- Testing electronic products prior to installation
- Shipboard data back-up
- Diagnostic software accountability and version control

FIRST SHIP CHALLENGES

- Products not ATIS compliant or not available in electronic format
- Proprietary software and plug-ins
- All-platform coding for LTD
- Crews downloading/installing incompatible software and plug-ins

FIRST SHIP CHALLENGES

- Advanced Change Notices and Revisions
- Baselining the Integrated Logistics Support (ILS) products for Commercial-off-the-Shelf (COTS) based tactical systems
- Training products on the ITP

LESSONS LEARNED

- Trust but verify
- Fund TMMAs early as possible for static systems
- Building Specification was silent to “Electronic Outfitting”
- Standards for Electronic Publication need to be better defined
- Minor components with booklet/pamphlet TMs
- Non-ITP products need to play in an ATIS environment